

In re Patent Application of:
OLSSON ET AL.
Serial No. 09/147,230
Filed: 2/9/99

the specification is more accurately described as the ratio $(X_{n,k})/(Y_{n,k})$. As would be appreciated by those skilled in the art, the parameters may represent the received carrier and the desired carrier, respectively. Accordingly, the objection and/or rejection in view thereof, should be properly withdrawn.

I. The Invention

As shown in FIGS. 1 and 2, for example, the disclosed invention is directed to a receiver for use in an OFDM type transmission system, in which data is transmitted in frames. Each frame has a cyclic prefix that is a repetition of part of the frame. Control means are provided and the control means controls a sampling oscillator. Preferably, the control means include estimation means for estimating timing deviations of the sampling clock. The estimation means operates entirely on frequency domain input data.

II. The Claims are Patentable

Claims 30, 41, 42 and 58 were rejected in view of (U.S. 5,732,113) for the reasons set forth on pages 4 and 5 of the Office Action. Claims 31-38 were indicated as being allowable. Applicants contend that Claims 30, 41, 42 and 58 clearly define over the cited reference, and in view of the following remarks, favorable reconsideration of the rejection under 35 U.S.C. §102 is requested.

Independent Claim 30 is directed to a receiver, for use in an OFDM transmission system in which data is

In re Patent Application of:
OLSSON ET AL.
Serial No. 09/147,230
Filed: 2/9/99

transmitted in frames, each frame having a cyclic prefix that is a repetition of part of the frame. The receiver includes a sampling oscillator, a control means for controlling the sampling oscillator and comprising estimation means for estimating timing deviations of the sampling oscillator. Also, the estimation means operates entirely on frequency domain input data. Independent Claim 58 includes similar features.

It is this combination of features which is not fairly taught or suggested in the cited reference and which patentably defines over the cited reference.

The Examiner has relied upon the Schmidl et al. patent (U.S. 5,732,113) as disclosing a method and apparatus for attaining synchronization of a receiver to an OFDM signal, including symbol/frame timing synchronization, carrier frequency synchronization, and sampling rate synchronization. The Schmidl patent teaches that after determining an estimate for the entire carrier frequency offset, the receiver can be synchronized to eliminate this carrier frequency offset either by multiplying the error out from the samples or by re-adjusting one or more of the local oscillators in the receiver, and an estimate can be made for the sampling rate offset. However, the Examiner has inadvertently mischaracterized the cited patent as there is no teaching of estimating timing deviations of the sampling clock based entirely on frequency domain input data, as claimed.

As the Examiner is aware, a claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single

In re Patent Application of:
OLSSON ET AL.
Serial No. 09/147,230
Filed: 2/9/99

prior art reference. The identical invention must be shown in as complete detail as is contained in the claim.

There is simply no teaching or suggestion in the cited reference to provide the combination of features as claimed. Accordingly, for at least the reasons given above, Applicants maintain that the cited reference does not disclose or fairly suggests the invention as set forth in Claims 30 and 58. Furthermore, no proper modification of the teachings of this reference could result in the invention as claimed. Thus, the rejection under 35 U.S.C. §103(e) should be withdrawn.

It is submitted that the independent claims are patentable over the prior art. In view of the patentability of the independent claims, it is submitted that their dependent claims, which recite yet further distinguishing features are also patentable over the cited references for at least the reasons set forth above. Accordingly, these dependent claims require no further discussion herein.

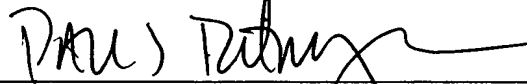
III. Conclusion

In view of the foregoing remarks, it is respectfully submitted that the present application is in condition for allowance. An early notice thereof is earnestly solicited. If, after reviewing this Response, there are any remaining informalities which need to be resolved before the application can be passed to issue, the Examiner is invited and

In re Patent Application of:
OLSSON ET AL.
Serial No. 09/147,230
Filed: 2/9/99

respectfully requested to contact the undersigned by telephone
to resolve such informalities.

Respectfully submitted,



PAUL J. DITMYER
Reg. No. 40,455
Allen, Dyer, Doppelt, Milbrath
& Gilchrist, P.A.
255 S. Orange Avenue, Suite 1401
Post Office Box 3791
Orlando, Florida 32802
Telephone: 407/841-2330
Fax: 407/841-2343
Attorney for Applicants

CERTIFICATE OF MAILING

I hereby certify that this correspondence is being
deposited with the United States Postal Service as first class
mail in an envelope addressed to: DIRECTOR, U.S. PATENT AND
TRADEMARK OFFICE, WASHINGTON, D.C. 20231, on this 24 day of
December, 2002.

